Minutes of COMAL-80 Development Group Meeting
Regnecentralen, Copenhagen, 1 March 83

1.0 Composition of the COMAL-80 Development Group

It was decided that the COMAL-80 Development Group should consist initially of the persons present at the Copenhagen meeting. A list of these members is attached to these minutes.

In addition it was decided to invite a teacher to join from each of the countries using COMAL in the schools. For the moment this includes Denmark, Sweden, Ireland and Britain. There already are members from the Danish and Swedish schools. It was decided that the chairman should invite an Irish and a British teacher to join the group. In the case of Ireland the Computer Education Society of Ireland should be approached.

Roy Atherton was appointed chairman of the Development Group by the Standardization Group. Brendan Lynch was appointed secretary to the Development Group.

2.0 Reports and Papers

The Development group may request one or more members to prepare papers on particular topics at a meeting. These papers should be sent to the secretary within a month of the meeting. They will be circulated to all members for comments as soon as they are received.

3.0 Items Referred by the Standardization Group

3.1 Precedence of Unary Minus

It was decided that:

1. Unary minus shall have the same precedence as binary minus.
2. In expressions, the order of evaluation of operators is left to right, except for exponentiation (^) which is evaluated right to left.

3.2 Should the Integer Data Type occur in the Kernel or Extensions?

Kevin Ryan (TCD) said that the Integer data type was highly desirable to represent exact arithmetic quantities. Borge Christensen said that integer types were needed as variables of this type took up less space in memory and on disk.

Erik Jepsen (RC) said that RC did not implement integers at present and had no plans to implement them in the future. In view of this it was decided to put the Integer type into the Extensions rather than the Kernel.

Discussion then changed to how this could be done. Kevin Ryan agreed to prepare a paper on how Integers could be included in the extensions without destroying integrity of the Kernel when they are present in an implementation.

Borge Christensen made the point that if Integers are not in the Kernel, they should not influence in any way the behaviour of COMAL systems that have included them as extensions. Arne Christensen (Metanic) did not feel this was possible, as integer expressions did not have the same range as real expressions. Brendan Lynch (TCD) said that in any case you did not have the same range for Real variables in different implementation, and the range of a data type could not be made part of the COMAL standard. Kevin Ryan (TCD) agreed and said the only way you could define when an expression was evaluated as Integer and when as Real was to move Integers back into the Kernel.

3.3 Dynamic Strings

Kevin Ryan (TCD) proposed that dynamic strings be allowed in the extensions, and that when this is done any specification of string lengths (via an 'OF' clause) should be parsed but otherwise ignored.

3.3.1 Should dynamic strings be allowed?

All implementors felt that dynamic strings were a good idea, where they could be made to fit into an implementation. Roy Atherton said they could make reading or writing of records impossible. Brendan Lynch said this was not so, both for Binary and Text records.

It was agreed that dynamic strings should be allowed as an extension to COMAL.

3.3.2 How do dynamic strings affect existence and semantics of the String Dimension statement?

Kevin Ryan (TCD) proposed that any 'OF'-clause should be ignored. It would not be an error to encounter a scalar string which had not been dimensioned.

It was agreed that this should be accepted.

3.3.3 Scalar String assignment

Discussion about the semantics of scalar strings also arose. It was pointed out that at present the assignment of a string to a string variable whose maximum length is smaller than the length of the first string is allowed and causes silent truncation.

Kevin Ryan and Brendan Lynch (TCD) argued that this should not be allowed, and should cause a runtime error as data was being lost. Borge Christensen said it was useful, particularly in picking up the first letter of 'YES-NO' responses from the User. Since all implementors with static strings have implemented truncation, it was agreed that silent truncation should be specified in the kernel.

3.3.4 Default Length of Scalar Strings

Borge Christensen then proposed that there be a default length for undeclared strings or string arrays dimensioned without an 'OF'-clause. He pointed out that this was allowed in several other languages, and would ease the transition between static and dynamic strings. Arne Christensen (Metamic) did not think this was a good idea.

Erik Jepsen (RC) proposed an alternative: that the length of the first string assigned to a string variable be its maximum length for non-defined strings. This met with general disapproval.

Both proposals were rejected for both the Kernel and extensions.

3.4 TCDs proposal to modify syntax of Expressions

Trinity College had significantly modified the syntax of Expressions in the Kernel to attempt to prohibit expressions where logical values were operated on by arithmetic operators.

Kevin Ryan (TCD) said that where possible the user should be prevented from typing nonsensical statements. The TCD changes went part of the way toward doing this, by prohibiting the use of logical values for such things as subscripts where they were obviously nonsense.

Arne Christensen (Metanic) argued that it should be possible to combine any two sorts of expressions. He felt it was not right that a user could type:

```
a:=2>3; a:=3<4; c:=a-b
```

but not

```
c:=(2>3)-(3<4)
```

whether or not the end result had any meaning.

Lars Lauersen said that an 'EXCLUSIVE OR' operator could be obtained by using the '<>' aritmetic comparison operator on logical values. If Trinity's change were allowed this would not be possible, and a far longer expression would have to be written. Brendan Lynch (TCD) said that surely this was an argument for including an 'EXOR' operator in the language, instead of using a trick.

The teachers at the meeting (Erling Schmidt, Roy Atherton, Borge Christensen) did not think that any problem would ever arise in practice and were in favour of the present definition.

Kevin Ryan said Trinity still felt strongly about the issue, but would accept that the group was not in favour of it.

The modified syntax was rejected.

3.5 IMPORT SHARE, scope, binding

Papers on scope and binding are to be submitted to secretary by all four implementors within a month. The secretary will prepare a sumarry paper and will circulate this along with the other papers among the group in order to encourage discussion and agreement.

3.6 STOP with message and END

Discussion on this was deferred as both are extensions.

3.7 Short Forms

When passed down by the standardization group, it had been decided by them that either all four short forms (IF, WHILE, FOR and REPEAT) should be in the Kernel, or none of them should.

Morgens Pelle (Metanic) said the group was faced with the large philosophical question of what should be in the Kernel. He did not feel the short forms belonged in the Kernel, even though Metanic implement one short form at present.

Morgens Pelle agreed to prepare a paper on what must be in the Kernel.

No decision was reached.

3.8 EXEC / no EXEC

Arne Christensen will prepare a paper on this.

No decision.

3.9 Outstanding Issues

The chairman will prepare and circulate a list of the outstanding issues. Any member of the group who has comments on any of these should prepare a short paper with the comments and pass on to the secretary for circulation among the group.

4.0 Miscellaneous

4.1 Rounding

Semantics of converting real to integer values were discussed. Everybody except CBM rounds. It was generally felt that normal precision limitations in real arithmetic will often yield a result which is slightly less than the desired integer (say 0.99999 instead of 1) and it is not sensible to convert this value of 0.9999 to 0.

CBM should present a paper on why truncation should be used instead of rounding.

4.2 String formatting in PRINT USING statements.

Trinity College Dublin will present a proposal for formatting strings with a PRINT USING format string.

4.3 RANDOMIZE/RANDOM

Roy Atherton proposed that a Random start to the RANDOM function should be the default. Morgens Pelle felt this would be difficult to do.

Decision deferred to next meeting.

4.4 Packages

All implementors to prepare papers on WHY these should be include in COMAL and WHAT syntax and semantics they should have, and circulate these through the secretary in the normal way.